

Claims:

1. A method carried out in response to an off-hook state assumed by a terminal coupled to a switch via a serially connected arrangement of one or more resources, comprising the steps of:

determining whether said terminal has been unsuccessful in establishing a connection in at least K consecutive previous dialing sessions, where K is a preselected integer; and

affirmatively delaying provision of a dial tone to said terminal when said step of determining concludes in the affirmative.

2. The method of claim 1 where said steps of determining and delaying are conditions on a preceding step of determining that said terminal is un-included in a set of terminals that are excluded from dial tone delay.

3. The method of claim 1 where said step of determining reaches said affirmative conclusion when said terminal has been unsuccessful in establishing a connection in at least K consecutive previous dialing sessions, within a predetermined time interval of said terminal assuming said off-hook state.

4. The method of claim 1 where said step of determining reaches said affirmative conclusion when said terminal has been unsuccessful in establishing a connection in at least K consecutive previous dialing sessions, and a time interval between each dialing session and its immediately previous dialing session is less than a predetermined constant.

5. The method of claim 1 where said delay is variable.

6. The method of claim 4 where said delay is a function of time interval between said terminal assuming said off-hook state and the immediately previous unsuccessful dialing session.

7. The method of claim 4 where said step of determining computes number of immediately previous dialing sessions that were unsuccessful in establishing a connection, N, and comparing N to K.

8. The method of claim 7 where said delay is a function of N.

9. The method of claim 7 where said delay is dependent on whether said terminal employs a repertory dialer or not.

10. The method of claim 7 where said delay is longer when said terminal employs a repertory dialer than when said terminal does not employ a repertory dialer.

11. The method of claim 7 where said delay is a function of conditions in network that encompasses said switch.

12. The method of claim 7 where said delay is a function of congestion conditions in said serially connected arrangement.

13. The method of claim 7 where said delay is a function of cause for immediately previous dialing session being unsuccessful.

14. The method of claim 17, carried out in said switch.

15. The method of claim 17, carried out in a node interposed in said serially connected arrangement of resources.

16. The method of claim 15 where said node establishes a connection between said terminal and said switch, to allow said switch to provide a dial tone to said terminals, and to allow digits dialed by said terminal to reach said switch.

17. The method of claim **15** where dial tone is generated by said node and provided to said terminal by said node, and digits dialed by said terminal in response to dial tone are collected in said node and thereafter communicated to said switch.

18. A method for providing dial tone to off-hook terminals, in an arrangement where line identifiers of terminals that are in an off-hook condition, while waiting to receive a dial tone, are stored in a plurality of delay queues, where a first delay queue of said plurality of delay queues nominally injects a given delay, and all delay queues in said plurality of delay queues inject delays that are greater than said given delay and different from each other, comprising the steps of:

selecting one of said queues as a selected queue when a dial tone generator is available for coupling to a terminal;

extracting a line identifier from said selected queue; and

coupling said dial tone generator to a terminal identified by said line identifier that is extracted by said step of extracting.

19. The method of claim **18** where said steps of selecting, extracting, and coupling occur when said dial tone generator is available for coupling to a terminal.

3. The method of claim **18** where said given delay is zero.

21. The method of claim **18** where said extracting is in accord with a LIFO schema when said selected queue is said first delay queue, and said extracting is in accord with a FIFO schema when said selected queue is other than said first delay queue.

22. The method of claim **21** where said step of selecting selects a queue in accordance with a predetermined selection algorithm.

23. The method of claim **18** where said step of selecting selects said first of said plurality of delay queues in preference to all other delay queues of said plurality of delay queues whenever said first of said plurality of delay queues is not empty.

24. The method of claim **18** where said step of selecting selects a delay queue having shortest injected delay from a subset of said plurality of delay queues that includes delay queues that are not empty.

25. The method of claim **18**, carried out in a switch to which said terminals are coupled.

26. The method of claim **18**, carried out in equipment interposed between said terminals and a switch.

27. The method of claim **26** where said switch is a central office switch.

28. A method carried out in response to an off-hook state assumed by a terminal coupled to a switch, comprising the steps of:

evaluating a repeat redialing index, M , that corresponds to number of immediately previous, consecutive, dialing attempts by said terminal that were unsuccessful in establishing a connection, and

based value of said index M , routing a line identifier of said terminal to delay queue $Q(0)$ that nominally has a t_0 delay when $0 \leq M < K_1$, routing said line identifier to delay queue $Q(1)$ that has a nominal delay duration t_1 when $K_1 \leq M < K_2$, and routing said line identifier to delay queue $Q(2)$ that has a nominal delay duration t_2 when $K_2 \leq M < K_3$.

29. The method of claim **28** where K_3 is arbitrarily large.

30. The method of claim **28** where queue $Q(0)$ is a LIFO queue, queue $Q(1)$ is a FIFO queue, and queue $Q(2)$ is a FIFO queue.

31. The method of claim **28** where said t_0 delay is zero.

32. The method of claim **28** further comprising a step of engaging a selection process to extract a line identifier from collection of queues that includes Q(0), Q(1), and Q(2), and couple a dial tone to a terminal identified by said line identifier.

33. The method of claim **28** further comprising a step of selecting one of said queues as a selected queue; and extracting a line identifier from said selected queue.

34. The method of claim **33** where said step of selecting one of said queues as a selected queue takes place when a dial tone generator is available to be coupled to a terminal.

35. The method of claim **28** where said extracting is in accord with a LIFO schema when said selected queue is Q(0), and said extracting is in accord with a FIFO schema when said selected queue is other than Q(0).

36. The method of claim **28** where said step of selecting is initiated when a dial tone generator is available to be coupled to a terminal.

37. The method of claim **28** further comprising a step of coupling a dial tone to a terminal of said terminals that is associated with the line identifier extracted in said step of extracting.

38. The method of claim **28** where said step of selecting is initiated when a dial tone generator is available to be coupled to a terminal, and further comprising a step of coupling said dial tone generator to a terminal of said terminals that is associated with the line identifier extracted in said step of extracting.

39. The method of claim **28**, carried out in a switch to which said terminals are coupled.

40. The method of claim **28**, carried out in equipment interposed between said terminals and a switch.

41. The method of claim **40** where said switch is a central office switch.